

# PATENT SPECIFICATION

726,882



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## COMPLETE SPECIFICATION

### Improvements in or relating to Air Distributing Devices

I, IAIN MAXWELL STEWART, of British Nationality, of 150, Helen Street, Glasgow, S.W.1, Scotland, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to air distributing devices of the type normally fitted in the ceilings of spaces that are air conditioned. Such devices have been previously manufactured in various forms, among the earlier forms being that described in the specification of Patent No. 375,862.

The prior constructions suffered from the defect that their design involved sudden changes in velocity and direction of air passing therethrough, such changes in velocity and direction being accompanied by considerable turbulence, resulting in the production of noise.

It is an object of the present invention to provide an air distributing device in which air is distributed without sensible draught and with the minimum of noise.

From experiment it has been found that, when air is discharged into a space from a distributing device in the ceiling, the most important factor that decides whether the discharged air moves radially outwards parallel with the ceiling, or moves vertically downwards at right angles to the ceiling is the angle of the stream of discharged air to the vertical axis of the distributing device. This condition holds good whether the angle of discharge is determined by a number of deflecting members or by one member deflecting the moving air to the required angle.

From the foregoing it will be understood that the simplest and most efficient device will be that which discharges the air at the required angle with the minimum change in velocity and direction of the air stream.

An air distributing device according to the present invention comprises a hollow open-ended outer member at least a portion of which is tapered, and an inner member tapered

to a greater degree than the tapered portion of the outer member co-axial with the outer member and supported at least partly within and spaced from the outer member, the degree of taper of the members being so related that the area of the space between the two members at all sections at right angles to the axis of the members is a constant.

The smaller end of the outer member may be arranged for attachment to an end of an air duct.

The two members may be cones or pyramids.

The interior of the inner member may be filled with sound-absorbing material.

A practical embodiment of the invention is illustrated in the accompanying drawing in which 1 denotes an outer member having a tapered portion 2 and a parallel portion 3 arranged for attachment to an air duct. 4 denotes an inner tapered member filled with sound-absorbing material 5 and supported by the outer member 1 by a spider 6. The degree of taper of the inner member 4 being greater than that of the tapered portion 2 of the outer member 1. The arrows 7 indicate the direction of the stream of air passing through the device.

In practice, air enters the smaller end of the outer member 1 and is deflected by the outer surface of the inner member 4 into the passage presented between the outer member 1 and the inner member 4, the orientation of the passage determining the direction in which the air is discharged from the distributing device. Since the cross sectional area of the passage is a constant, the air velocity through the passage remains unchanged and noise and pressure losses are reduced to a minimum. The sound-absorbing material suppresses noise carried by the air stream from the fan or from the duct so that such noises are minimised or completely suppressed before they can reach the outlet of the device.

What I claim is:—

1. An air distributing device comprising a hollow open-ended outer member at least part

[Price 2s. 8d.]

Price 25p

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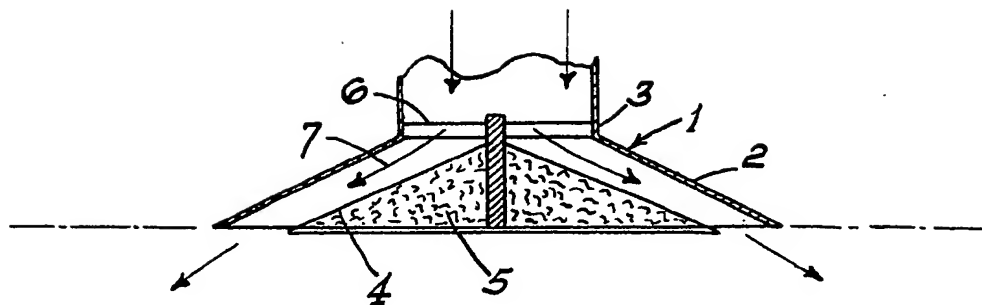
- of which is tapered, and an inner member tapered to a greater degree than the tapered portion of the outer member co-axial with the outer member and supported at least partly within and spaced from the outer member, the degree of taper of the members being so related that the area of the space between the two members at all sections at right angles to the axis of the members is a constant.
- 5 2. A device as claimed in claim 1 in which the smaller end of the outer member is arranged for attachment to an end of an air duct.
- 10 3. A device as claimed in claim 1 in which the two members are of conical form.
- 15 4. A device as claimed in claim 1 in which the two members are of pyramidal form.
5. A device as claimed in claim 1 in which the interior of the inner member is filled with sound-absorbing material.
- 20 6. An air distributing device substantially as described with reference to the accompanying drawing.

CRUIKSHANK & FAIRWEATHER,  
Chartered Patent Agents,  
29, St. Vincent Place, Glasgow, C.1,  
Agents for the Applicants.

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